

Math 4840: Introduction to Math Research

Spring 2016

Syllabus

INSTRUCTOR: Slava Krushkal (Kerchof Hall 321), e-mail: krushkal@virginia.edu

CLASS MEETINGS: Friday 2PM - 4:15PM, New Cabell Hall 415.

OFFICE HOURS: Wednesday 2:30 - 3:30, Thursday 3-4, and by appointment.

OBJECTIVES: The main subject this semester is **Knot theory**. *It is an important requirement that students learn in depth a specific topic in this subject; actual understanding of the Mathematics involved in this topic is an essential goal.* Independent research is a possibility, but not a requirement.

An important part of this class is introduction to such essential elements of mathematical research as working with different sources of math-related information (textbooks, monographs, original papers, internet), putting together and giving a presentation on a given topic, writing and revising a paper based on his/her presentation, and refereeing papers written by other students. In addition to developing research and presentation skills, students will learn the basics of one of scientific word processing systems such as LaTeX.

FORMAT: One 2-hour meeting per week. The instructor will give a couple of introductory lectures on the general subject of Knot theory, and help students choose topics for their individual presentations/papers that fit the general subject of the course. A list of suggested topics will be distributed during the first class, and then individual topics will be discussed and agreed upon at the meeting with the instructor. The instructor will also help students find suitable sources. Students presentations are expected to begin during the 4th meeting of the class. Prior to this standards and suggestions for mathematical presentations will be discussed in class.

PREREQUISITES: Math 3354 (Survey of Algebra) is a pre-requisite; other advanced Math courses, specifically 5000-level classes would be very helpful.

REQUIREMENTS/CLASS WORK: Each student will give two 30-min presentations in class and submit one paper (7-10 pages) based on these presentations. If the two presentations are related, it can be a cumulative paper; otherwise it can cover either presentation. Also, each student will referee a paper written by a peer.

GRADING: Grades will be assigned based on presentations, papers, referee reports, and class participation.

ATTENDANCE is mandatory.